

# Safety Topic of the Month

## PPE Matrix



Richmond Refinery

September 2011

# The PPE Matrix: Purpose



- PPE Matrices are created and maintained by the Refinery Safety and Industrial Hygiene Team to state the minimum required Personal Protective Equipment (PPE) to be worn when working within defined Confined Spaces.

# Anatomy of the PPE Matrix



*Location*

4 Crude

C-1100-Atmospheric Column

*Equipment Description*

Ammonia					Conditions	Skin	Eye	Hand	Foot	Hearing
Half Face	Full Face	Cartridge	Change Out	SCBA						
N/A	25-300ppm	AM	ESLI	300ppm and above						
					Wet/Sludge	Poly Tyvek	Goggles	Taped Nitrile	Rubber Boots	Ear Plugs
					Dry/Dusty	Tyvek	Spoggles	Leather	-	Ear Plugs
					Clean	Tyvek	Safety Glasses	Leather	-	Ear Plugs

Benzene					Conditions	Skin	Eye	Hand	Foot	Hearing
Half Face	Full Face	Cartridge	Change Out	SCBA						
1-10ppm	10-50ppm	OV	10 Hours	50ppm and above						
					Wet/Sludge	Poly Tyvek	Goggles	Taped Nitrile	Rubber Boots	Ear Plugs
					Dry/Dusty	Tyvek	Spoggles	Leather	-	Ear Plugs
					Clean	Tyvek	Safety Glasses	Leather	-	Ear Plugs

H2S					Conditions	Skin	Eye	Hand	Foot	Hearing
Half Face	Full Face	Cartridge	Change Out	SCBA						
N/A	N/A			5ppm and above						
					Wet/Sludge	Poly Tyvek	Safety Glasses	Taped Nitrile	Rubber Boots	Ear Plugs
					Dry/Dusty	Tyvek	Spoggles	Leather	-	Ear Plugs
					Clean	Tyvek	Safety Glasses	Leather	-	Ear Plugs

Hydrocarbon					Conditions	Skin	Eye	Hand	Foot	Hearing
Half Face	Full Face	Cartridge	Change Out	SCBA						
N/A	300-500ppm	OV	8 hours	500ppm and above						
					Wet/Sludge	Poly Tyvek	Goggles	Taped Nitrile	Rubber Boots	Ear Plugs
					Dry/Dusty	Tyvek	Spoggles	Leather	-	Ear Plugs
					Clean	-	Safety Glasses	Leather	-	Ear Plugs

# Confined Space Entry Permit PPE Requirements



- Information is taken from the PPE Matrix along with the gas testing results obtained by Chevron Fire Department or Operations and documented on the Entry Permit for that confined space.

<b>Protective Equipment Required:</b>	<b>Typical: Hard Hat, Eye Protection, Boots, FR Outerwear</b>
	<b>Other:</b>
	<b>Remarks:</b>

# Confined Space Entry Permit PPE Requirements



- PPE Requirements for confined space entries are determined by the physical condition of the confined space along with the gas testing result in accordance with the PPE Matrix.
- Upon Initial Entry, CFD will perform the gas testing and visual inspection of the Confined Space, comparing results to the PPE Matrix, and determining the minimum required PPE, documenting it on the permit.

# PPE Matrix Limitations



- The PPE Matrix specifies required PPE ONLY for Confined Space Entries
- Once PPE Levels for a confined space are determined on the initial testing, they must remain in effect for the extent of that permit. To reduce or raise PPE, a new permit and gas testing is required.

# What is Your Part?



- Make sure that prior to entering any confined space, the minimum required PPE is known AND properly donned
- Remember that task specific Protective Equipment may change within a space. Speak with the Standby Attendant prior to entering regarding any ongoing work or hazards that may exist inside the space.
- Remember to be aware of changing conditions or other work occurring within a confined space that may change the PPE requirements or the affect your safety while in the space. Continually use your LPSA to evaluate hazards and changing conditions.

# What is Your Part?



- Choose the Right PPE for the Job
  - Respirator cartridges do not filter out every hazard in the refinery
    - The most commonly used respirator cartridge in the refinery is the North Defender Cartridge. It filters out numerous chemical hazards, but certain hazards such as Mercury, require a different cartridge!



= VOC, SO<sub>2</sub>,  
Ammonia,  
Chlorine, etc.



= Mercury,  
Chlorine

- Check with your Safety group if there are questions regarding the correct PPE for the job!





# QUESTIONS?

If you have any questions, please contact a member of the  
Safety group.